Installer Manual

VENTILATION SYSTEMS

VB0065

vänEE Canadian Model Numbers	Broan U.S.A. Model Numbers
1001 ERV*	HRV100H
1001 HRV*	HRV200H
2001 ERV	ERV100HC
2001 HRV*	ERV200HC

7 72371 03309 2

* These products earned the ENERGY STAR® by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. They meet ENERGY STAR requirements only when used in Canada.

03119 rev. D

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About this Manual

This manual uses the following symbols to emphasize particular information:

⚠WARNING

Identifies an instruction which, if not followed, might cause serious personal injuries including possibility of death.

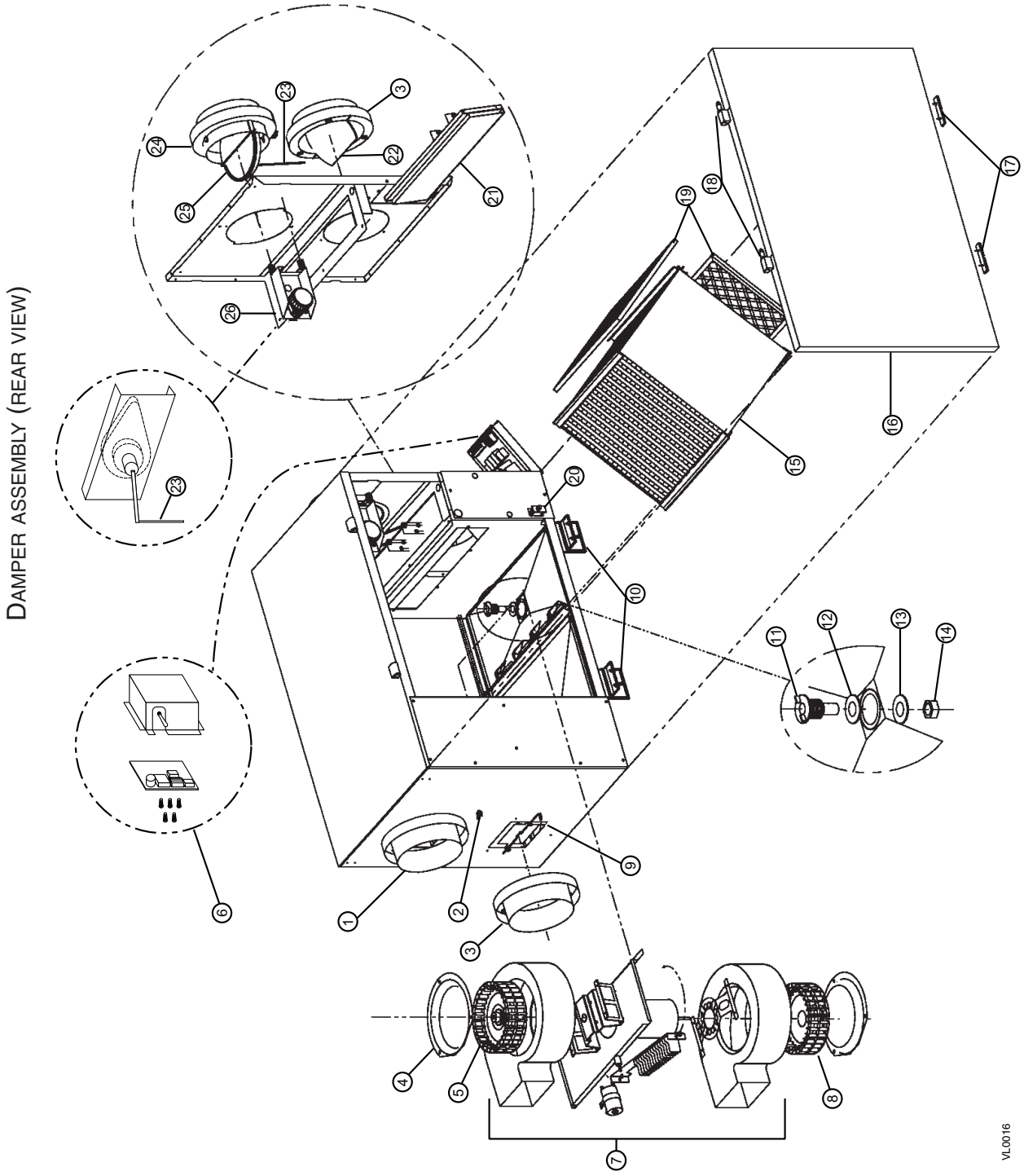
CAUTION

Denotes an instruction which, if not followed, may severely damage the unit and/or its components.

NOTE: Indicates supplementary information needed to fully complete an instruction.

1. Service

1.1 3-D Drawing



1. Service (cont'd)

1.2 Parts Ordering Chart

No.	Description	1001 HRV	1001 ERV	2001 HRV	2001 ERV	HRV 100H	ERV 100HC	HRV 200H	ERV 200HC
1	Double collar port no. 2	00866	00866	00866	00866	00866	00866	00866	00866
2	Wing nut no. 10-32	00874	00874	00874	00874	00874	00874	00874	00874
3	Balancing double collar port	02256	02256	02256	02256	02256	02256	02256	02256
4	Inlet ring	12913	12913	12913	12913	12913	12913	12913	12913
5	Top wheel	14307	03093	14308	03093	14307	03093	14308	03093
6	Electronic board V99	13507	13507	13507	13507	13508	13507	13508	13507
7	Motor assembly	13504	13555	13556	13506	13504	13555	13505	13506
8	Bottom wheel	02015	02015	03093	03093	02015	02015	03093	03093
9	Square balancing damper	12645	12645	12645	12645	12645	12645	12645	12645
10	Door latches (latch)	00886	00886	00886	00886	00886	00886	00886	00886
11	Drain connector	02418	02418	02418	02418	02418	02418	02418	02418
12	Drain gasket 0,625" D	02419	02419	02419	02419	02419	02419	02419	02419
13	Washer 5/8" ID x 1" OD	03117	03117	03117	03117	03117	03117	03117	03117
14	Nut 5/8-18	02420	02420	02420	02420	02420	02420	02420	02420
15	Recovery core	03132	03136	03133	03137	03134	03136	03135	03137
16	Door assembly	12644	12644	12644	12644	12648	12648	12648	12648
17	Door latches (keeper)	00887	00887	00887	00887	00887	00887	00887	00887
18	Hinge assembly	00672	00672	00672	00672	00672	00672	00672	00672
19	Filter	03096	03096	03097	03097	03096	03096	03097	03097
20	Switch E69 10A	01825	01825	01825	01825	01825	01825	01825	01825
21	Damper assembly no. 2	12643	12643	12649	12649	12643	12643	12649	12649
22	Plastic balancing damper	02253	02253	02253	02253	02253	02253	02253	02253
23	Damper rod	12620	12620	12620	12620	12620	12620	12620	12620
24	Double collar port no. 5	02021	02021	02021	02021	02021	02021	02021	02021
25	Damper no. 1	12459	12459	12459	12459	12459	12459	12459	12459
26	Damper actuator assembly	03124	03124	03124	03124	03124	03124	03124	03124

Please take note that parts not listed are not available; those parts require assembly knowledge that only manufacturer can guarantee.

TO ORDER PARTS: Contact your local distributor

1.3 Technical Support (for assistance)

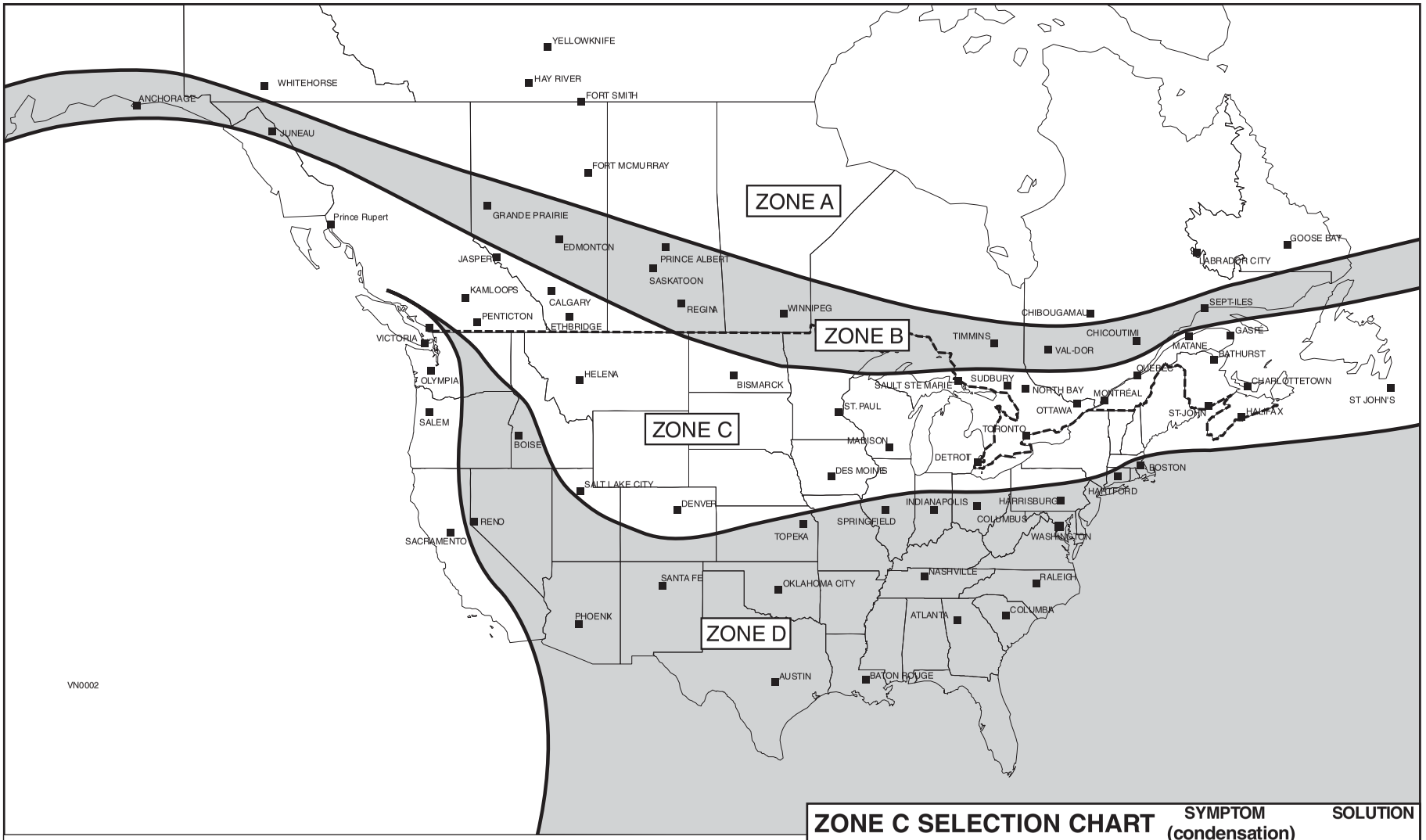
For assistance, call on week days, 8:30 AM to 5:00 PM (Eastern Standard Time).

Technical Support Department

Canada: Tel: 1-888-908-2633 (for distributors only)

U.S.A.: Tel: 1-800-637-1453

NOTE: Do not call these numbers for ordering parts.



ZONE A (HRVs only)

- Set Extended Defrost according to section 7.2.3, point 4.
- MODELS: 1001 HRV, 2001 HRV, HRV100H, HRV200H.

ZONE B (HRVs only)

- Extended Defrost setting not required (factory defrost strategy pre-set).
- MODELS: 1001 HRV, 2001 HRV, HRV100H, HRV200H

ZONE C (HRV or ERV according to your client's particular problems) ***see ZONE C SELECTION CHART beside***

- HRV MODELS: 1001 HRV, 2001 HRV, HRV100H, HRV200H.
- ERV MODELS: 1001 ERV, 2001 ERV, ERV100HC, ERV200HC.

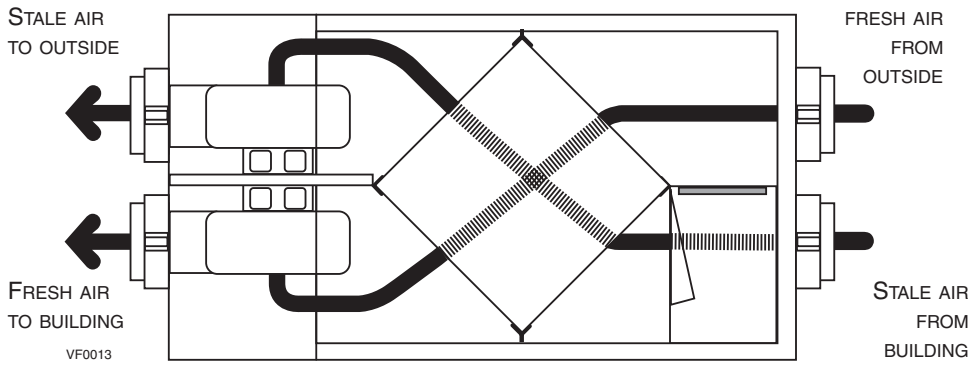
ZONE D (ERVs recommended)

- ERV MODELS: 1001 ERV, 2001 ERV, ERV100H, ERV200H.

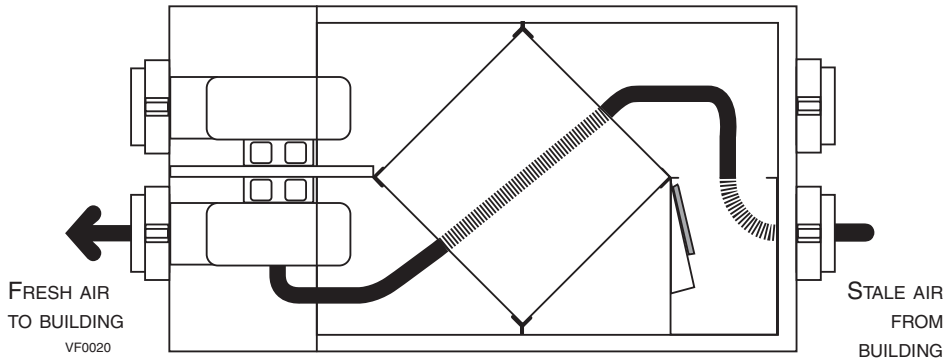
ZONE C SELECTION CHART	SYMPTOM (condensation)	SOLUTION
Indoor air quality problem		ERV
and / or Excess moisture problem		ERV
and / or Important excess moisture problem		HRV

3. Technical Data

3.1 Air Distribution (Normal Operation)



3.2 Air Distribution (Defrost Mode)



3.3 Defrost Cycle Table

Outside Temperature		Defrost Cycles		Extended Defrost Cycle	
Celcius (°C)	Fahrenheits (°F)	Defrosting (min.)	Operation time (min.) between each defrost cycle	Defrosting (min.)	Operation time (min.) between each defrost cycle
-5	23	6	32	10	30
-15	5	6	32	10	20
-27	-17	6	20	10	15

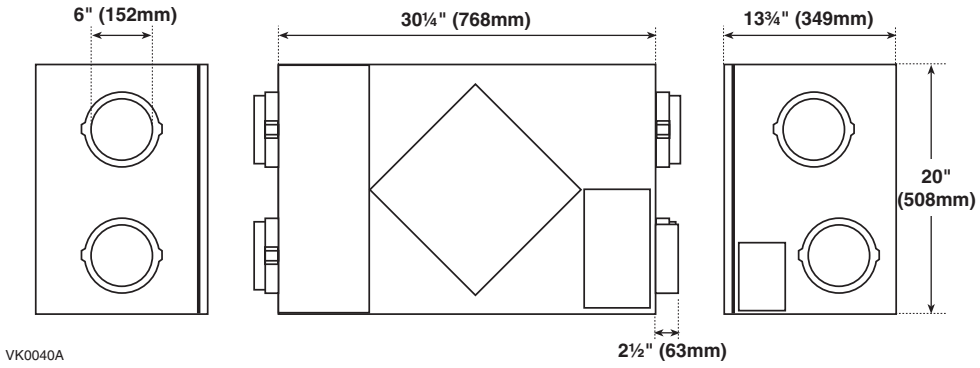
NOTE: The unit performance charts are listed on their own specification sheets. To access those documents, visit: www.vanee-ventilation.com (Canadian units) or www.broan.com (U.S.A. units).

3. Technical Data (cont'd)

3.4 Dimensions

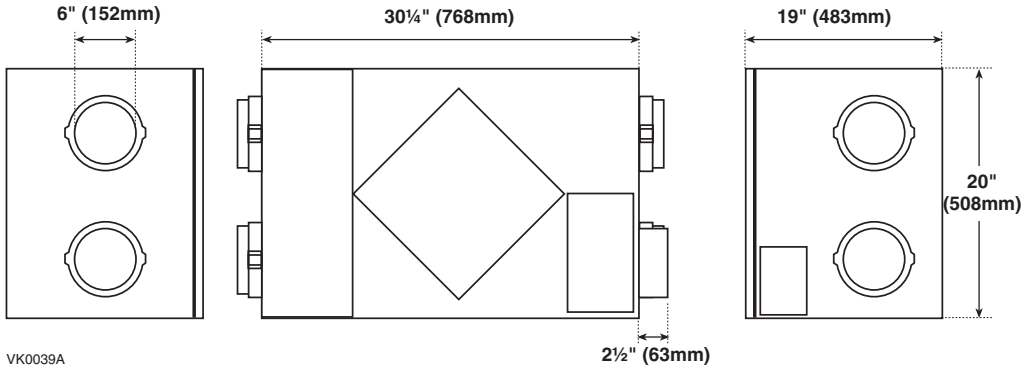
Models numbers

- **1001 ERV**
- **1001 HRV**
- **HRV100H**
- **ERV100HC**



Models numbers

- **2001 ERV**
- **2001 HRV**
- **HRV200H**
- **ERV200HC**



3.5 Controls and Furnace Link Option

Main controls:

- Platinum (Canada only)
- Basic (Can.) / VT1W (U.S.A.)
- VT2W (U.S.A. only)

Optional controls:

- 20-minute push-button (for HRV100H and HRV200H models only)
- 20/40/60-minute push-button (for all other models)
- 60-minute crank timer
- Humidity Control

Link option:

- Furnace interlock (use with forced air systems)

3.6 Specifications

MODEL NUMBERS	1001 ERV, 1001 HRV, HRV100H, ERV100HC	2001 ERV, 2001 HRV, HRV200H, ERV200HC
Weight	65 lb (30 kg)	73 lb (33 kg)
Port diameter	6" (152 mm)	6" (152 mm)
Drain diameter	1/2" (12 mm)	1/2" (12 mm)
Installation	- Chains, spring and hooks (provided with U.S.A. units) - Straps and washers (provided with Canadian units)	
Motor Speed	High and low speeds factory set (optional increased low speed - BLUE wire)	
Electrical Supply	120 V, 60 Hz	120 V, 60 Hz
Power consumption	150 Watts	225 Watts

4. Typical Installation

There are three (3) common installation methods.

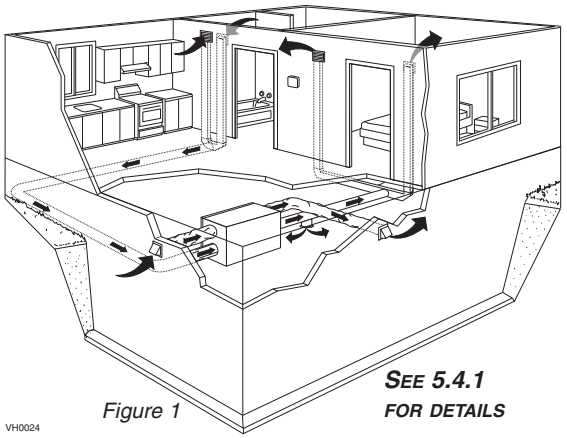
4.1 Fully Ducted System

(Primarily for homes with radiant hot water or electric baseboard heating. See figure 1.)

Moist, stale air is exhausted from the high humidity areas in the home, such as bathrooms, kitchen and laundry room. Fresh air is supplied to bedrooms and principal living areas.

If required, bathroom fans and a range hood may be used to better exhaust stale air.

Homes with more than one level require at least one exhaust register at the highest level.



VH0024

Figure 1

See 5.4.1 for details

4.2 Exhaust Ducted System *(Source Point Ventilation)*

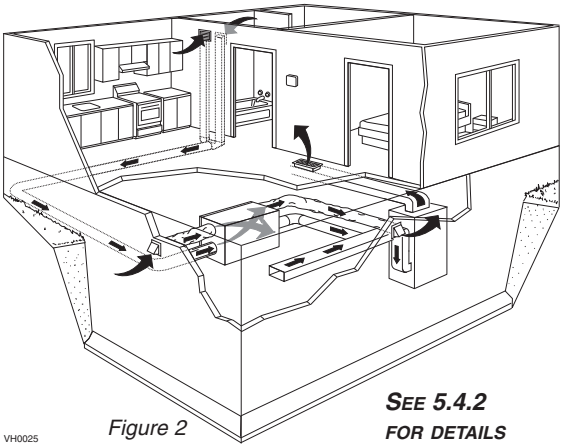
(For homes with forced air heating. See figure 2.)

Moist, stale air is exhausted from the high humidity areas in the home, such as bathrooms, kitchen and laundry room. Fresh air is supplied to the cold air return or the supply duct of the furnace.

If required, bathroom fans and a range hood may be used to better exhaust stale air.

Homes with more than one level require at least one exhaust register at the highest level.

NOTE: For this type of installation, it is not essential that the furnace blower runs when the unit is in operation, but we recommend it.



VH0025

Figure 2

See 5.4.2 for details

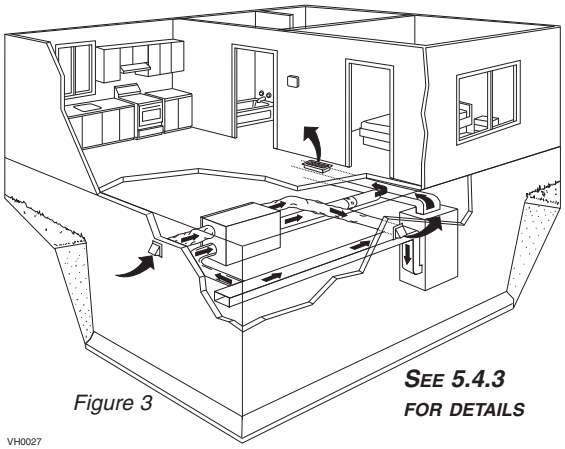
4.2 Simplified *(Volume Ventilation)*

(For homes with forced air heating. See figure 3 or 4.)

Fresh air and exhaust air flow through the furnace ducts which simplifies the installation.

The use of bathroom fans and a range hood is suggested to better exhaust stale air.

NOTE: For the installation type shown in figure 4, **furnace blower should be running** when the unit is in operation.

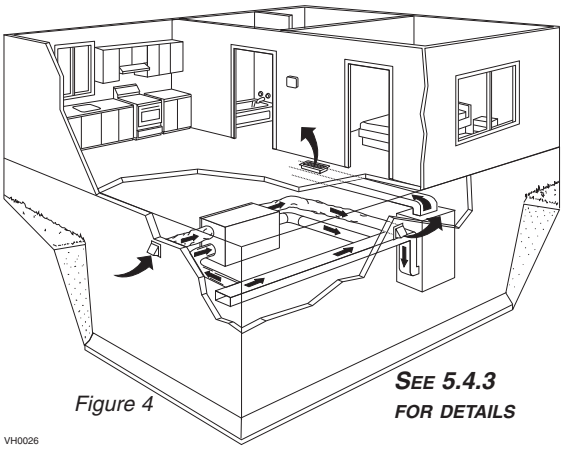


VH0027

Figure 3

See 5.4.3 for details

OR



VH0026

Figure 4

See 5.4.3 for details

5. Installation

⚠WARNING

When applicable local regulations comprises more restrictive installation and/or certification requirements, the aforementioned requirements prevail on those of this document and the installer agrees to conform to these at his own expenses.

⚠WARNING

When performing installation, servicing or cleaning the unit, it is recommended to wear safety glasses and gloves.

INSPECT THE CONTENTS OF THE BOX

- Inspect the **exterior of the unit** for shipping damage. Ensure that there is no damage to the door, door latches, door hinges, dampers, duct collars, cabinet, etc.
- Inspect the **interior of the unit** for damage. Ensure that the fan motor assembly, recovery core, insulation, dampers, damper actuator and drain pan are all intact.
- If the unit was damaged during shipping, contact your local distributor. (Claim must be made within 24 hours after delivery.)
- Use checklist included with the unit to ensure that no parts are missing.

5.1 LOCATING AND MOUNTING THE UNIT

Choose an **appropriate location** for the unit:

- Within an area of the house where the temperature is above 10°C / 50°F (basement, attic, furnace room, laundry room, etc.).
- Away from living areas (dining room, living room, bedroom), if possible.
- So as to provide easy access to the interior cabinet and to the control panel on the right hand side of the unit.
- Close to an exterior wall, so as to limit the length of the insulated flexible duct to and from the unit.
- Close to a drain. If no drain is close by, use a pail to collect run-off.
- Away from hot chimneys, electrical panel and other fire hazards.
- Allow for a power source (110 V standard outlet).

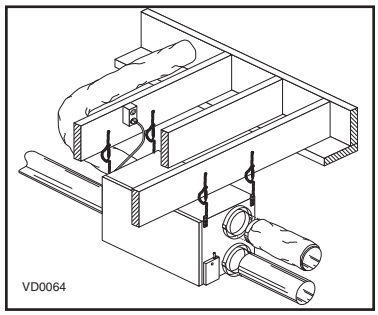


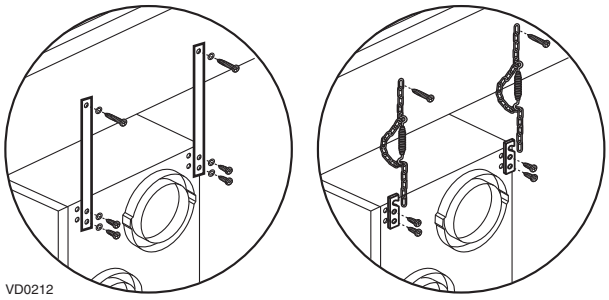
Figure 6

CAUTION

Make sure the unit is level.

For vänEE Canadian models 1001 VRE, 1001 VRC, 2001 VRE and 2001 VRC, hang the unit to ceiling joists with washers and 4 straps (included) (see figure 7 beside).

For Broan U.S.A. models HRV100H, HRV200H, ERV100HC, and ERV200HC, hang the unit to ceiling joists with the 4 chains, springs and hooks (included) (see figure 7 beside).



VÄNEE CANADIAN MODELS
1001 VRE, 1001 VRC,
2001 VRE AND 2001 VRC

BROAN U.S.A. MODELS
HRV100H, HRV200H,
ERV100HC AND ERV200HC

Figure 7

5.2 PLANNING OF THE DUCTWORK

a) Follow the instructions in Section 5.3 next page to determine the appropriate duct diameters for your system.
b) Keep it simple. Plan for a minimum number of bends and joints. Keep the length of insulated duct to a minimum.
c) Do not use wall cavities as ducts. Do not use branch lines smaller than 4" (102 mm) Ø.
d) Do not ventilate crawl spaces or cold rooms. Do not attempt to recover the exhaust air from a dryer or a range hood. This would cause clogging of the recovery module. Use sheet metal for the kitchen exhaust duct.
e) Be sure to plan for at least one exhaust register on the highest lived-in level of the house if it has 2 floors or more.

5. Installation (cont'd)

5.3 Calculating the Duct Size

Use the table below to ensure that the ducts you intend to install will be carrying air flows <u>at or under</u> the recommended values. Avoid installing ducts that will have to carry air flows near the maximum values and never install a duct if its air flow exceeds the maximum value.

Ducts diameter	Recommanded Air Flow			Maximum Air Flow		
4" (102 mm)	40 cfm	19 l/s	68 m³/h	60 cfm	28 l/s	102 m³/h
5" (127 mm)	75 cfm	35 l/s	127 m³/h	110 cfm	52 l/s	187 m³/h
6" (152 mm)	120 cfm	57 l/s	204 m³/h	180 cfm	85 l/s	306 m³/h
7" (178 mm)	185 cfm	87 l/s	314 m³/h	270 cfm	127 l/s	459 m³/h
8" (203 mm)	260 cfm	123 l/s	442 m³/h	380 cfm	179 l/s	645 m³/h

NOTE: Examples 5.3.1 and 5.3.2 use imperial measures.
The same calculation applies to metric measures.

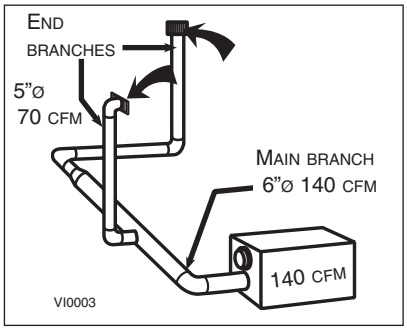


Figure 8

5.3.1 Example of calculation:

Problem: My installation requires two exhaust registers (one for the kitchen, one for the bathroom). I will connect these registers to a main duct which will connect to the unit (high speed performance value of 140 cfm). What size of duct should I use for the main exhaust duct and for the two end branches leading to the registers? (See figure 8.)

Solution: <u>Simplified method.</u> (For a more detailed method of calculating duct size refer to the ASHRAE or HRAI HANDBOOK).
<u>Main duct:</u> Table above indicates a 6" Ø duct: Recommended air flow: 120 cfm; maximum air flow: 180 cfm. The high speed air flow of 140 cfm is close enough to the recommended value (120) and far enough away from the maximum value (180). Therefore a 6" Ø duct or larger is an appropriate choice for the <u>main exhaust duct.</u>
<u>End branches</u>: Each end branch will have to transport an air flow of 70 cfm (140 divided by 2). Table above indicates a 5" Ø duct: Recommended air flow: 75 cfm; maximum air flow: 110 cfm. The high speed air flow of 70 cfm is close enough to the recommended value (75) and far enough away from the maximum value (110). Therefore a 5" Ø duct or larger is an appropriate choice for the <u>2 end branches</u>.

NOTE: A 4"Ø duct would have been too small because the maximum acceptable value for a 4"Ø duct is 60 cfm.

5.3.2 Example of a design for a fully ducted system for a unit having a high speed performance of 222 cfm (See figure 9).

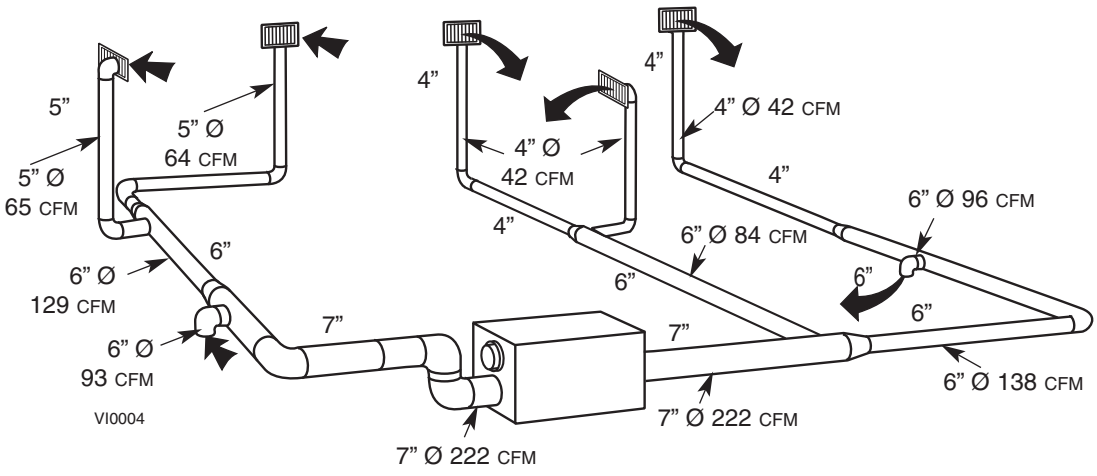


Figure 9

5. Installation (cont'd)

5.4 Installing the Ductwork and Registers

⚠ WARNING

Never install a stale air exhaust register in a room where a combustion device is, such as a gas furnace, a gas water heater or a fireplace.

CAUTION

The ductwork is intended to be installed in compliance with all applicable codes.

5.4.1 Fully Ducted System (as illustrated in Section 4.1)

Stale air exhaust ductwork:

- Install registers in areas where contaminants are produced: kitchen, bathrooms, laundry room, etc.
- Install registers 6 to 12 inches (152 to 305 mm) from the ceiling on an interior wall OR install them in the ceiling.
- Install the kitchen register at least 4 feet (1.2 m) from the range top.
- If possible, measure the velocity of the air flowing through the registers. If the velocity is higher than 400 ft/min. (122 m/min), then the register type is too small. Replace with a larger one.

Fresh air distribution ductwork:

- Install registers in bedrooms, dining room, living room and basement.
- Install registers either in the ceiling or high on the walls with air flow directed towards the ceiling. (The cooler air will then cross the upper part of the room, and mix with room air before descending to occupant level.)
- If a register must be floor installed, direct the air flow up the wall.

5.4.2 Exhaust Ducted System (Source Point Ventilation) (as illustrated in Section 4.2)

Stale air exhaust ductwork: (Same as for Fully Ducted System, described on Section 5.4.1)

Fresh air distribution:

⚠ WARNING

When performing duct connection to the furnace, installation must be done in accordance with all applicable codes and standards. Please refer to your local building code.

CAUTION

When performing connection to the furnace supply duct, this duct must be sized to support the additional airflow produced by the HRV/ERV. Also, use a metal duct with a backdraft damper to prevent the risk of overheating the HRV/ERV.

There are two methods for connecting the unit to the furnace:

Method 1: Supply side connection

- Cut an opening into the furnace supply duct at least 18 inches (0.5 m) from the furnace.
- Connect this opening to the fresh air distribution port of the HRV/ERV (use metal duct, see figure 10).
- Make sure that the HRV/ERV duct forms an elbow inside the furnace ductwork.
- If desired, interlock (synchronize) the furnace blower operation with the HRV/ERV operation. (See Section 7.4).

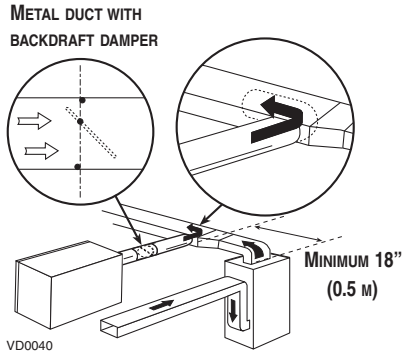


Figure 10

Method 2: Return side connection

- Cut an opening into the furnace return duct not less than 10 feet (3.1 m) from the furnace (A + B).
- Connect this opening to the fresh air distribution port of the HRV/ERV (see figure 11).

NOTE: For Method 2, it is not essential that the furnace blower runs when the HRV/ERV is in operation, but we recommend it. If desired, synchronize the furnace blower operation (see Section 7.4).

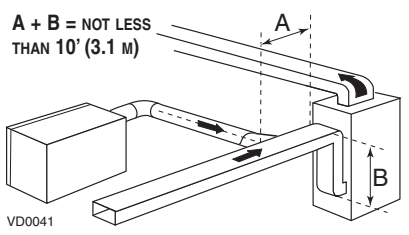


Figure 11

5.4 Installing the Ductwork and Registers (cont'd)

5.4.3 Simplified installation (Volume Ventilation) (as illustrated in Section 4.3)

⚠ WARNING

When performing duct connection to the furnace, installation must be done in accordance with all applicable codes and standards. Please refer to your local building code.

CAUTION

When performing connection to the furnace ducts (Method 1), these ducts must be sized to support the additional airflow produced by the HRV/ERV. Also, the supply duct must be a metal duct with a backdraft damper to prevent the risk of overheating HRV/ERV.

There are two methods (figures 12 and 13) for connecting the unit to the furnace:

Method 1: Return-supply

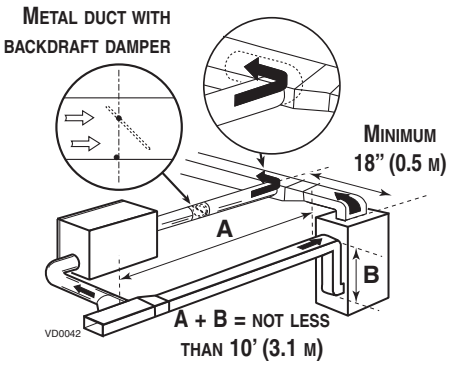


Figure 12

Method 2: Return-return

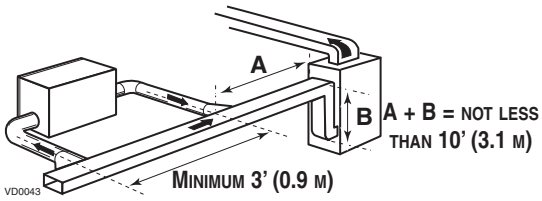


Figure 13

Stale air intake:

- Cut an opening into the furnace return duct not less than 10 feet (3.1 m) from the furnace (A + B).
- Connect this opening to the stale air intake port on the HRV/ERV as shown .

Fresh air distribution: (Same instructions as for Method 1 or Method 2, Section 5.4.2).

For method 2 (return-return) make sure there is a distance of at least 3 feet (0.9 m) between both connections to the furnace.

CAUTION

If using Method 2, make sure the furnace blower operation is synchronized with the HRV/ERV operation! See Section 7.4.

NOTE: For Method 1, it is not essential to synchronize the furnace blower operation with the HRV/ERV operation, but we recommend it.

5. Installation (cont'd)

5.5 Connecting Ducts to the Unit

Insulated flexible duct

Use the following procedure for connecting the insulated flexible duct to the ports on the unit (exhaust to outside and fresh air from outside).

a) Pull back the insulation to expose the flexible duct.

b) Connect the interior flexible duct to the port using a duct tie.

c) Carefully seal the connection with duct tape.

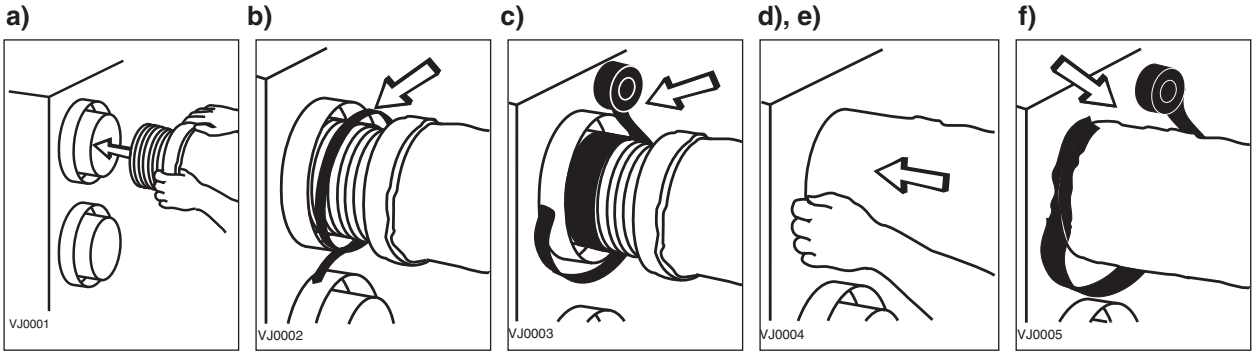
d) Pull the insulation over the joint and tuck it between the inner and outer rings of the double collar.

e) Pull the vapor barrier over the insulation and over the outer ring of the double collar.

f) Apply duct tape to the joint making an airtight seal. Avoid compressing the insulation when you pull the tape tightly around the joint. Compressed insulation loses its R value and causes water dripping due to condensation on the exterior surface of the duct.

CAUTION

Make sure that the vapor barrier on the insulated ducts does not tear during installation to avoid condensation within the duct.



Rigid duct:

Use duct tape to connect the rigid ducts to the ports.

CAUTION

Do not use screws to connect rigid ducts to the ports.

Make sure that the 2 balancing dampers are left in a fully open position before connecting the ducts to these ports (fresh air distribution port and stale air exhaust port as shown on figure 14).

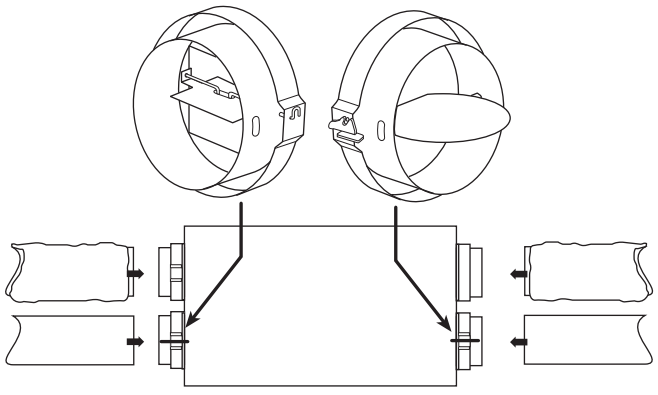


Figure 14

5. Installation (cont'd)

5.6 Installing the Exterior Hoods

CAUTION

All models require an exhaust hood with a backdraft damper. This damper closes when the unit is off and prevents unwanted cold air from entering the house.

Choose an appropriate location for installing the exterior hoods:

- At a minimum distance of 6 feet (1.8 m) between the hoods to avoid cross-contamination
- At a minimum distance of 18 inches (457 mm) from the ground

Make sure the intake hood is at least 6 feet (1.8 m) away from any of the following:

- Dryer exhaust, high efficiency furnace vent, central vacuum vent
- Gas meter exhaust, gas barbecue-grill
- Any exhaust from a combustion source
- Garbage bin and any other source of contamination

Refer to figure 15 for connecting the insulated duct to the hoods. Place the "FRESH AIR INTAKE" sticker, provided in the installation kit, on corresponding hood. An "Anti-Gust Intake Hood" should be installed in regions where a lot of snow is expected to fall.

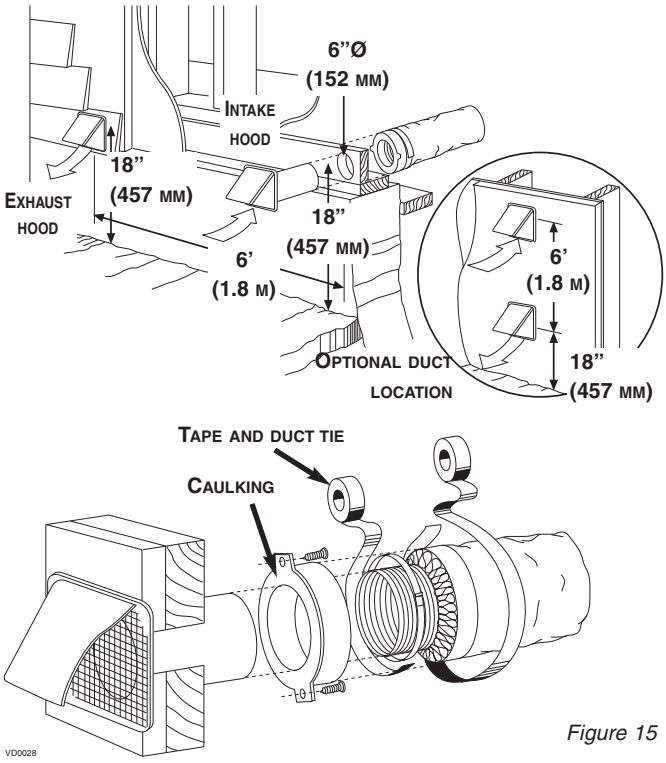
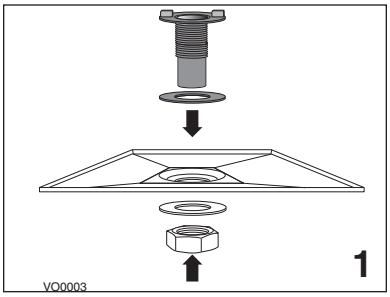
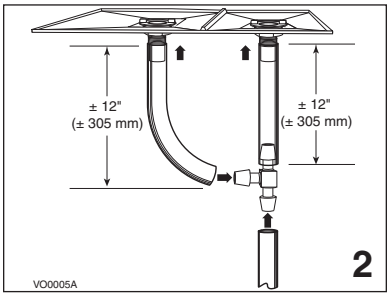


Figure 15

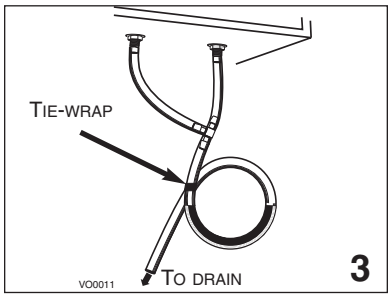
5.7 Connecting the Drain



Attach the 2 plastic drain fittings to the unit using the gaskets, washers and nuts as shown.

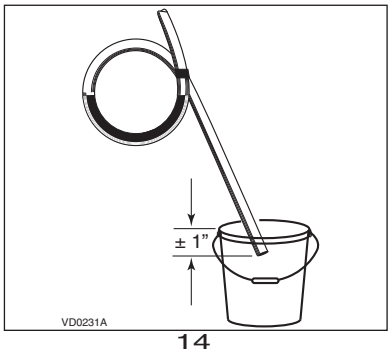


Cut 2 sections of plastic tubing, about 12" (305 mm) long and attach them to each drain fitting. Join the 2 short sections to the "T" junction and main tube as shown.



Make a water trap loop in the tube to prevent the unit from drawing unpleasant odors from the drain source. Make sure this loop is located BELOW the "T" as shown. This will prevent water from being drawn back up into the unit in case of negative pressure. Run the tube to the floor drain or to an alternative drain pipe or pail. Be sure there is a slight slope for the run-off.

If using a pail to collect water, locate the tube end approximately 1" from the top of the pail in order to prevent water from being drawn back up into the unit.



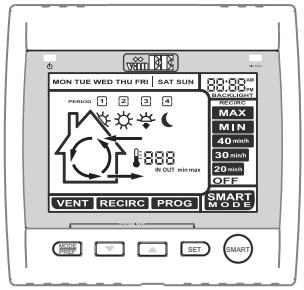
6. Control Devices

6.1 Main Controls

CAUTION

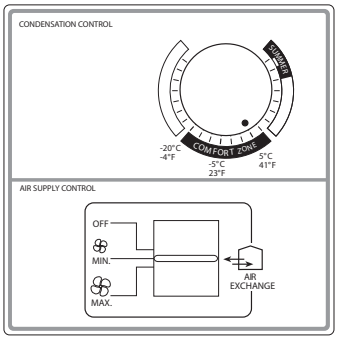
All models require a main control.

Platinum model (Canada)



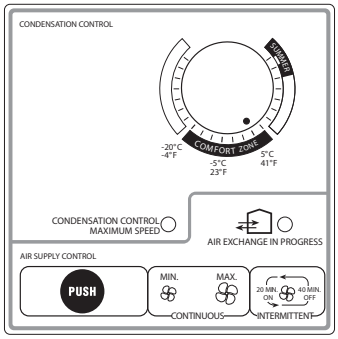
VC0104

VT1W model (U.S.A.)
Basic model (Canada)



VC0027

VT2W model
(U.S.A.)



VC0028

Humidity Control

Designed primarily for use with our low price HRV (Heat Recovery Ventilator) units, the Humidity Control helps control indoor maximum humidity level during fall, winter and spring. This control should not be installed in a house already equipped with other main controls (except the 3-position switch). You will find a relative humidity % scale instead of a temperature scale meant to reduce the window condensation problems.

3-position switch

Some model may come with a 3-position mounted switch on the electrical box on the exterior lower right front side. It is basically an airflow control that gives the customer the choice between the low and high speed or the OFF (REMOTE) position. This OFF (REMOTE) position does not deactivate the optional controls.

U.S.A. Models		**DH100W**	**VT1W**	**VT2W**	
Canadian Models		**Humidity control**	**Basic**		**Platinum**
Modes	OFF Position	X	X	X	X
	Intermittent exchange (TBI) 20 ON - 40 OFF			X	
	Intermittent exchange OR OFF (ON - OFF or ON - Recirculation)				X
	Low speed continuous exchange		X	X	X
	High speed continuous exchange		X	X	X
	SMART (entirely automatic mode optimizing ventilation)				X
	Program (programs the desired ventilation according to the period of the day)				X
	Recirculation (manual mode performing air recirculation inside the house)				X
Detector types	Humidity control (Relative humidity scale %)	X			
	Indoor condensation control (Temperature scale)		X	X	
	Outdoor Temperature				X
Indicators	Mode indicator		X	X	X
	Air exchange indicator			X	X
	Condensation/Polluant control max speed indicator		X		
	Maintenance indicator			X	X
	Day and hour indicators				X
Switches	Sliding button		X		
	Push button			X	X

6. Control Devices (cont'd)

6.2 Optional Controls

Lighted Push-Button Remote 20-minute Switch:

This remote illuminated switch is typically installed in bathrooms, kitchen and laundry room to provide 20 minutes of high speed ventilation at the push of a button. The switch is supplied and mounted on a white single gang wall plate. This push-button is available only for HRV100H and HRV200H units.

20/40/60-Minute Push-Button Timer:

This remote illuminated switch is typically installed in bathrooms, kitchen and laundry room to provide 20, 40 or 60 minutes of high speed ventilation at the push of a button. The switch is supplied and mounted on a white single gang wall plate. This push-button is not available for HRV100H and HRV200H units.

Mechanical Timer

This timer allows up to 60 minutes of high speed operation to be selected from a remote location.

6.3 Other Features

Furnace Interlock (for forced air heating system)

The furnace fan can be interlocked so that it will run simultaneously with the ERV or HRV to ensure proper distribution of fresh air throughout the house (see table section 6.4, to see if it is available on your unit).

Permanent Memory

Our electronic controls have a default memory feature in the event of a power outage. Even the date of the last service reminder is maintained as a convenience to the homeowner.

NOTE: For Platinum control only, if the power failure duration is more than 4 hours, the day and hour settings must be reprogrammed.

Control Upgrades

All controls can be used on any ERV, so a Basic control can be upgraded to a Platinum (or VT1W control can be upgraded to a VT2W) in the future (see table in Section 6.4 below for control availability according to the units).

6.4 Main and Optional Controls Available for your Unit

	MAIN CONTROLS				OPTIONAL CONTROLS			
Model number	DH100W Humidity control	VT1W Basic	VT2W	Platinum	20/40/60-minute push-button timer	20-minute push-button timer	60-minute Crank timer	Furnace Interlock
1001 ERV		X		X	X		X	Integrated
ERV100HC		X	X		X		X	Integrated
1001 HRV		X		X	X		X	Integrated
2001 ERV		X		X	X		X	Integrated
ERV200HC		X	X		X		X	Integrated
2001 HRV		X		X	X		X	Integrated
HRV100H / HRV200H	X	X				X	X	Optional kit Part no.12658

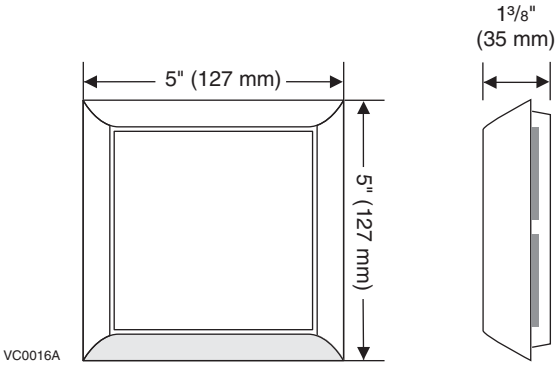
7. Installation of the Controls

7.1 Dimensions and Specifications (Main Controls)

Humidity Control, DH100W, Basic, VT1W, and VT2W

Voltage: 12 volts DC

Dimensions: 5” x 5” x 1⅜”
(127 mm x 127 mm x 35 mm)

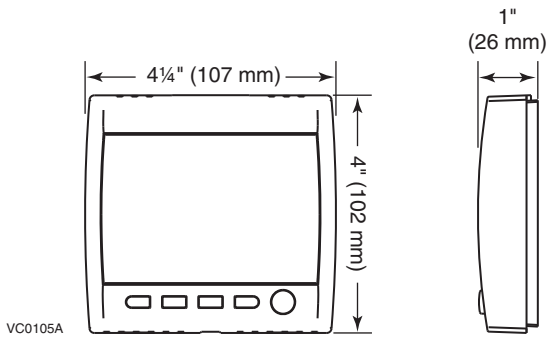


FRONT VIEW **SIDE VIEW**

Platinum

Voltage: 12 volts DC

Dimensions: 4¼” x 4” x 1”
(107 mm x 102 mm x 26 mm)



FRONT VIEW **SIDE VIEW**

7.2 Installation of the Main Control

⚠WARNING

Always disconnect the unit before making any connections. Failure in disconnecting power could result in electrical shock or damage of the control or electronic module inside the unit.

CAUTION

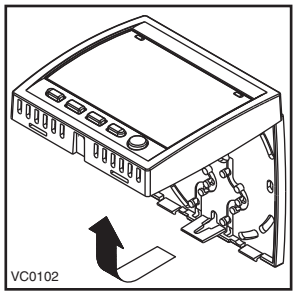
Failure to comply with the following can cause erratic operation of the unit:

- **Never install more than one optional control per unit.**
- **Keep control low voltage wiring at least 1 foot (305 mm) away from motors, lighting ballast, light dimming circuit and power distribution panel. Do not route control wiring alongside house power wiring.**
- **Ensure the wires are securely connected.**

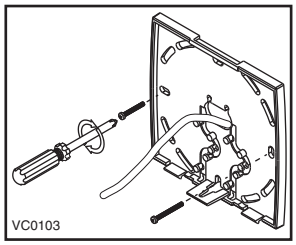
7.2.1 Platinum Main Control Installation

1. Route the cable from the unit to a convenient location for the control.

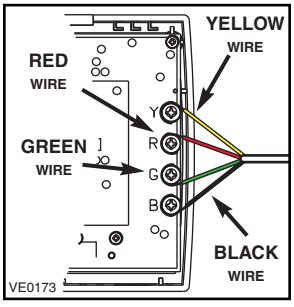
2. Detach the front module from the mounting plate by pulling the bottom part.



3. Run the cable (4 wires) through the central opening of the mounting plate and mount this plate to the wall using screws (not included). If needed, use wall anchors (not included).



4. Splice back the end of the cable to access the 4 wires. Strip the end of each wire. Connect each wire to its corresponding terminal on the back of the front module: YELLOW wire to “Y”, RED wire to “R”, GREEN wire to “G” and BLACK wire to “B”.



CAUTION

Be careful not to pinch wires when reinstalling the front module on its back plate.

5. Reinstall the front module over the back plate.

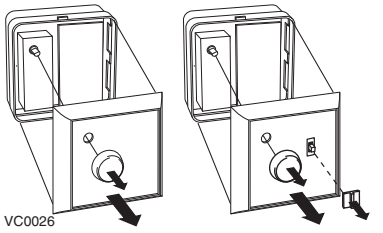
7. Installation of the Controls (cont'd)

7.2 Installation of the Main Control (cont'd)

7.2.2 Humidity Control, DH100W, Basic, VT1W, and VT2W Main Controls Installation

1- Determine the location of the control. The control must be installed in a central location on the main floor. Typical locations for these controls are kitchen, main hallways and family room.

2- Remove the button(s) and the cover plate of the control.

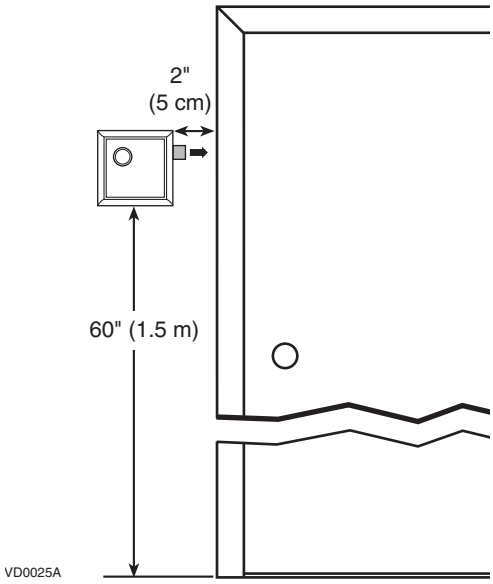


Humidity Control or VT2W

BASIC or VT1W

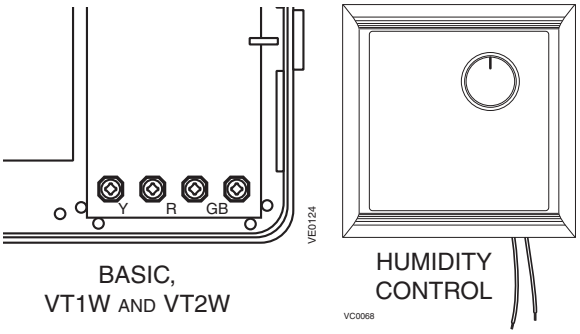
3- Install the control 60 inches (1.5 m) from the floor and leave a free space of at least 2 inches (5 cm) to the right of the control to allow user to slide out the control instructions (see figure beside).

Use the template provided in the control box to position the wire hole and the screw holes. Use the screws and the plastic anchors provided in the installation kit to secure the control.



4- Connect the wires to the main control.
(See figures beside)

NOTE: <u>For HRV100H and HRV200H only</u>:
To install VT1W, only connect GREEN and BLACK wires to main control.

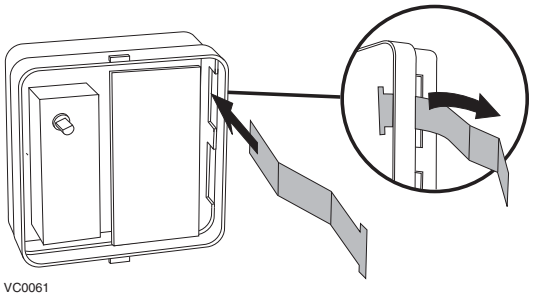


BASIC, VT1W AND VT2W

HUMIDITY CONTROL

5- Make sure the instruction pull-out is in the occupant's language. If not, turn it to the other side (see figure beside).

6- Reinstall the cover plate and the button(s).

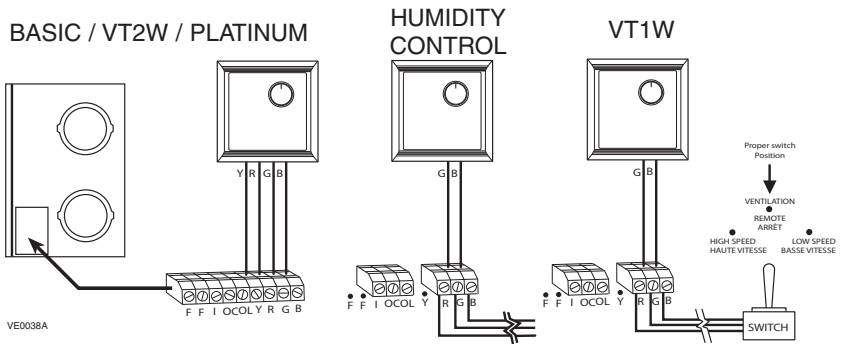


7. Installation of the Controls (cont'd)

7.2 Installation of the Main Control (cont'd)

7.2.3 Main Control Electrical Connection (All models)

1- Connect the wires to their corresponding position <u>inside the electrical compartment.</u> Make sure the connections of the unit and of the control correspond exactly. (See figure beside.)



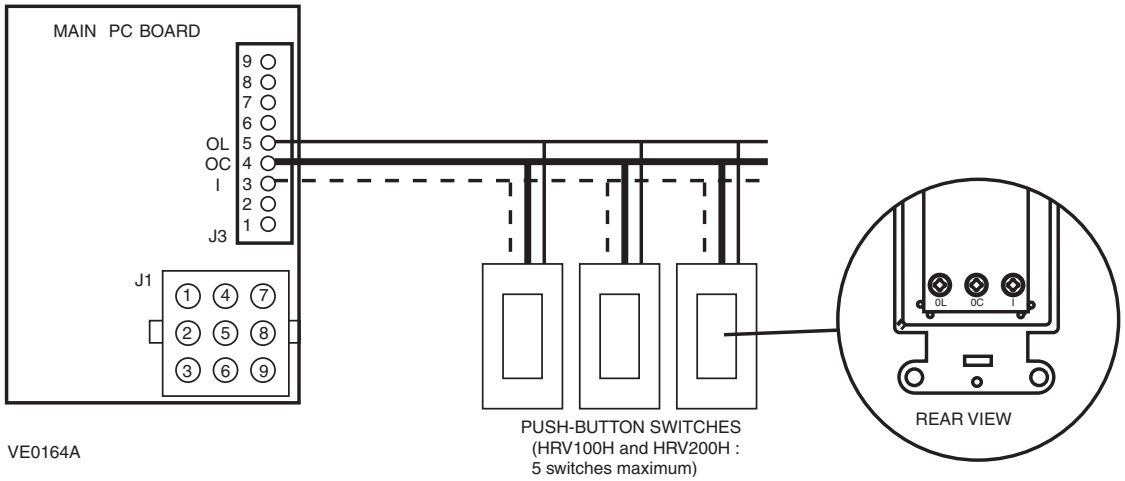
2- Connect the optional control (if applicable) by referring to Section 7.3.

3- Do the appropriate connection to the furnace (if applicable) by referring to Section 7.4.

4- NOTE: If the unit is installed in a cold region (Zone A, as defined in Section 2), set up "extended defrost" by removing jumper JU1F on the main circuit board inside the electrical compartment (see Section 8).

5- Plug in the unit and do the "overall verification" of the system as described in Section 10.

7.3 Electrical Connection to Optional Controls



7. Installation of the Controls (cont'd)

7.4 Electrical Connection to the Furnace

⚠WARNING

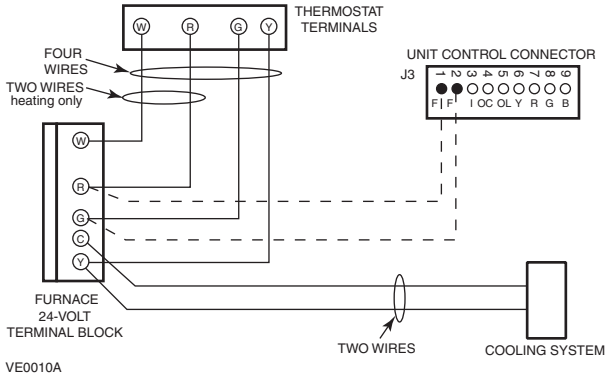
Never connect a 120-volt AC circuit to the terminals of the furnace interlock (standard wiring). Only use the low voltage class 2 circuit of the furnace blower control.

For a furnace connected to cooling system:

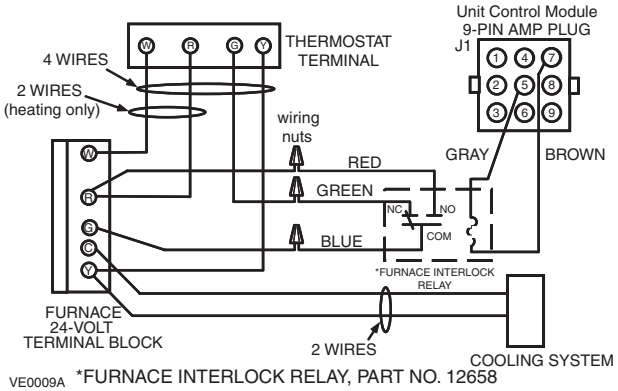
On some older thermostats, energizing the "R" and "G" terminals at the furnace has the effect of energizing "Y" at the thermostat and thereby turning on the cooling system. If you identify this type of thermostat, you must use the "alternate furnace interlock wiring". An additional control relay will then have to be installed.

NOTE: For HRV100H and HRV200H units, always use the "alternate furnace interlock wiring".

Standard Furnace Interlock Wiring



Alternate Furnace Interlock Wiring



*FURNACE INTERLOCK RELAY, PART NO. 12658

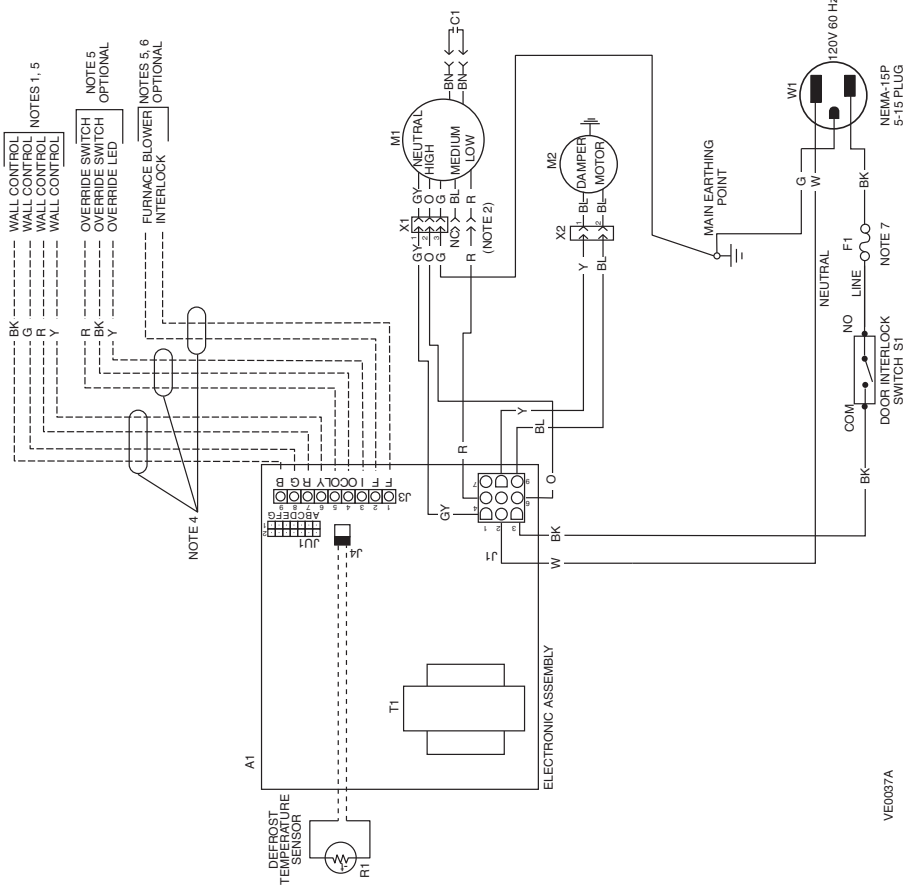
8. Wiring Diagrams

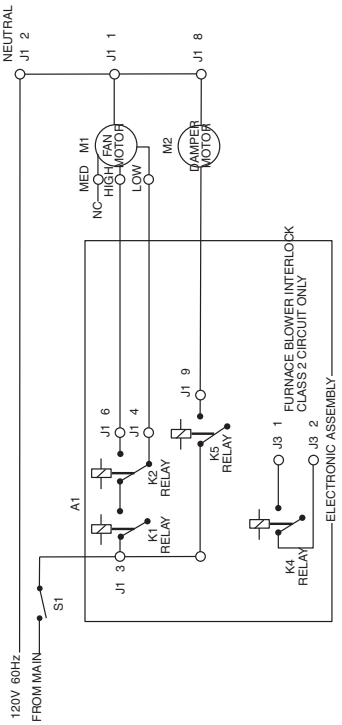
⚠WARNING

Risk of electrical shocks. Before performing any maintenance or servicing, always disconnect the unit from its power source. This product employs overload protection (fuse). A blown fuse indicates an overload or short-circuit situation. If the fuse blows, unplug the product from the outlet. Replace the fuse as per the servicing instructions (follow product marking for proper fuse rating) and check the product. If the replacement fuse blows, a short-circuit may be present and the product should be discarded or returned to an authorized service facility for examination and/or repair.

Models: 1001 ERV, 1001 HRV, 2001 ERV, 2001 HRV, ERV100HC, ERV200HC

Connection Logic





JUMPERS TABLE								MODELS TYPES	DEFROST TIME DEFROST/VENTILATION MINUTES		
JU1A	JU1B	JU1C	JU1D	JU1E	JU1F	JU1G			23°F -5°C	5°F -15°C	-17°F -27°C
OUT	OUT	OUT	OUT	OUT	IN	OUT		ALL MODELS	6/32	6/32	6/20
NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	OUT	NO CHANGE		ALL MODELS	10/30	10/20	10/15

JU1: A B C D E F G; 2 1

FUNCTION TABLE	RELAY			
MODE	K1	K2	K4	K5
Intermittent	0	0	0	0
Exchange Low	1	0	1	1
Exchange High	1	1	1	1
Circulation Low	1	0	1	0
Circulation High	1	1	1	0
Defrost Cycle	1	1	1	0
OFF	0	0	0	0

0 = Relay coil is de-energized

1 = Relay coil is energized

LINE VOLTAGE

LOW VOLTAGE AND FIELD WIRE

COLOR CODE			
BK	BLACK	NC	NO CONNECTION
BL	BLUE	O	ORANGE
BN	BROWN	R	RED
G	GREEN	W	WHITE
GY	GREY	Y	YELLOW

NOTES

1- Controls available. See Section 7 (Low voltage only, 12VDC).

2- The factory set wiring for blower speed selection is high and low. Medium speed can be selected instead of low speed. Disconnect the RED wire from the motor RED tap and connect it to the motor BLUE tap.

3- If any of the original wire, as supplied, must be replaced, use the same or equivalent wire.

4- Use the factory supplied protective tubing.

5- The field wiring must comply with applicable codes, ordinances and regulations.

6- The furnace fan circuit must be class 2 circuit only.

7- **SPECIFIED UL LISTED/CSA CERTIFIED LINE FUSE.** LittelFuse (225 003), 2AG Fast-Acting Fuse, 224/225 Series. Rating: 3 A

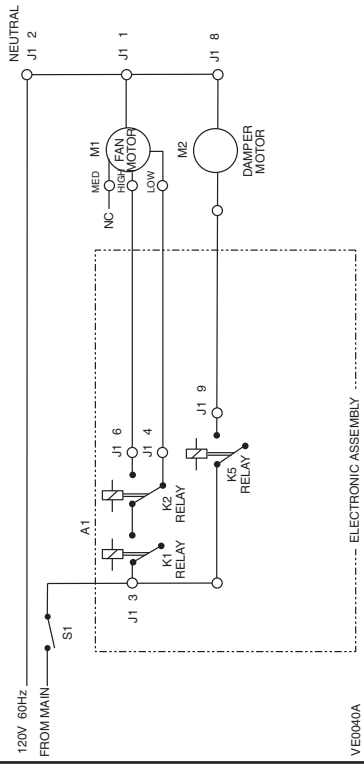
8. Wiring Diagrams (cont'd)

⚠WARNING

Risk of electrical shocks. Before performing any maintenance or servicing, always disconnect the unit from its power source. This product employs overload protection (fuse). A blown fuse indicates an overload or short-circuit situation. If the fuse blows, unplug the product from the outlet. Replace the fuse as per the servicing instructions (follow product marking for proper fuse rating) and check the product. If the replacement fuse blows, a short-circuit may be present and the product should be discarded or returned to an authorized service facility for examination and/or repair.

Models: HRV100H, HRV200H

Logic



JUMPERS TABLE							MODELS TYPES	DEFROST TIME DEFROST/VENTILATION MINUTES		
JU1A	JU1B	JU1C	JU1D	JU1E	JU1F	JU1G		23°F -5°C	5°F -15°C	-17°F -27°C
OUT	OUT	OUT	OUT	OUT	IN	IN	HRV100H HRV200H	6/32	6/32	6/20
OUT	OUT	OUT	OUT	OUT	OUT	IN	EXTENDED DEFROST ALL TYPES	10/30	10/20	10/15

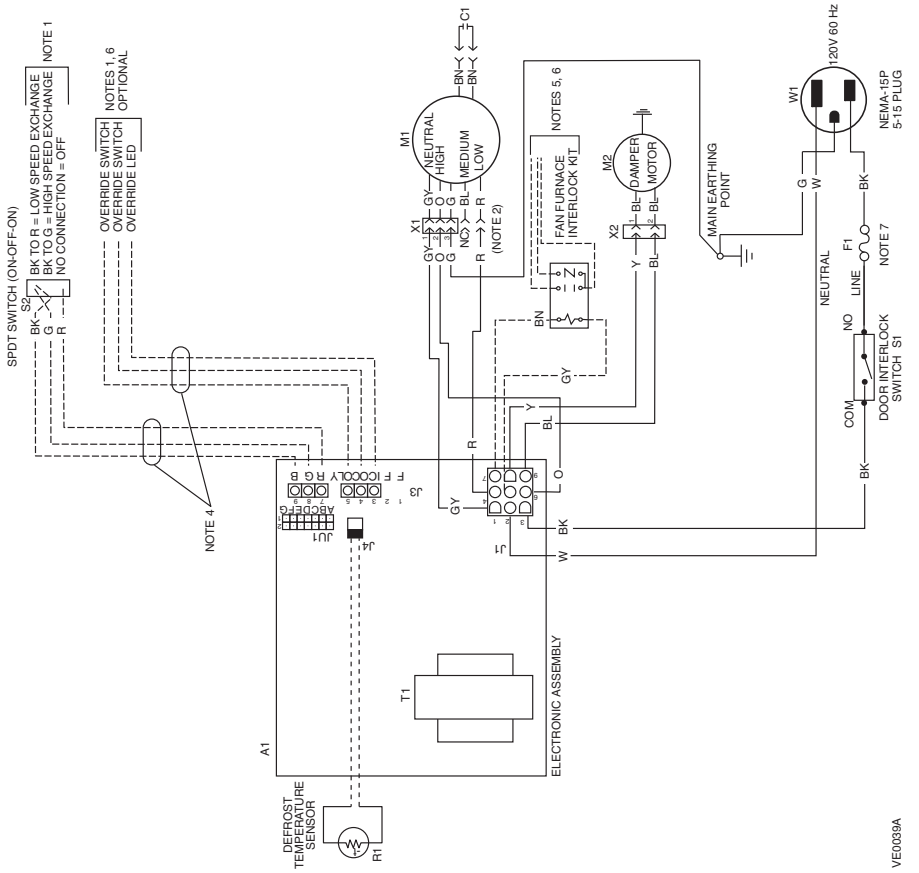
JU1: A B C D E F G, 1 2

FUNCTION TABLE	RELAY		
MODE	K1	K2	K5
Intermitent	0	0	0
Exchange Low	1	0	1
Exchange High	1	1	1
Circulation Low	1	0	0
Circulation High	1	1	0
Defrost Cycle	1	1	0
OFF	0	0	0

0 = Relay coil is de-energized

1 = Relay coil is energized

Connection



COLOR CODE

BK	BLACK	**NC**	NO CONNECTION
BL	BLUE	**O**	ORANGE
BN	BROWN	**R**	RED
G	GREEN	**W**	WHITE
GY	GREY	**Y**	YELLOW

NOTES

1- Controls cannot be connected to J3.

2- The factory set wiring for blower speed selection is high and low. Medium speed can be selected instead of low speed. Disconnect the RED wire from the motor RED tap and connect it to the motor BLUE tap.

3- If any of the original wire, as supplied, must be replaced, use the same or equivalent wire.

4- Use the factory supplied protective tubing.

5 Field installed option: Use only factory supplied kit.

6- The field wiring must comply with applicable codes, ordinances and regulations.

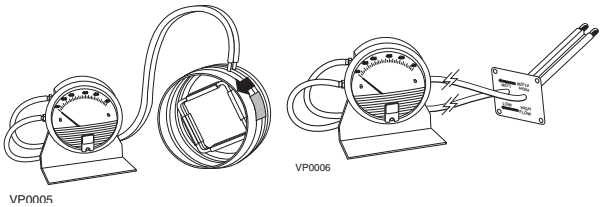
6- The furnace fan circuit must be class 2 circuit only.

7- **SPECIFIED UL LISTED/CSA CERTIFIED LINE FUSE.** LittelFuse (225 003). 2AG Fast-Acting Fuse, 224/225 Series. Rating: 3 A

9. Air Flow Balancing

What you Need to Balance the Unit

- A magnehelic gauge capable of measuring 0 to 0.25 inch of water (0 to 62.5 Pa) and 2 plastic tubes.
- Two ”Flow Measuring Stations” or two flow collars (the size will vary depending on the duct diameter).



Flow collar

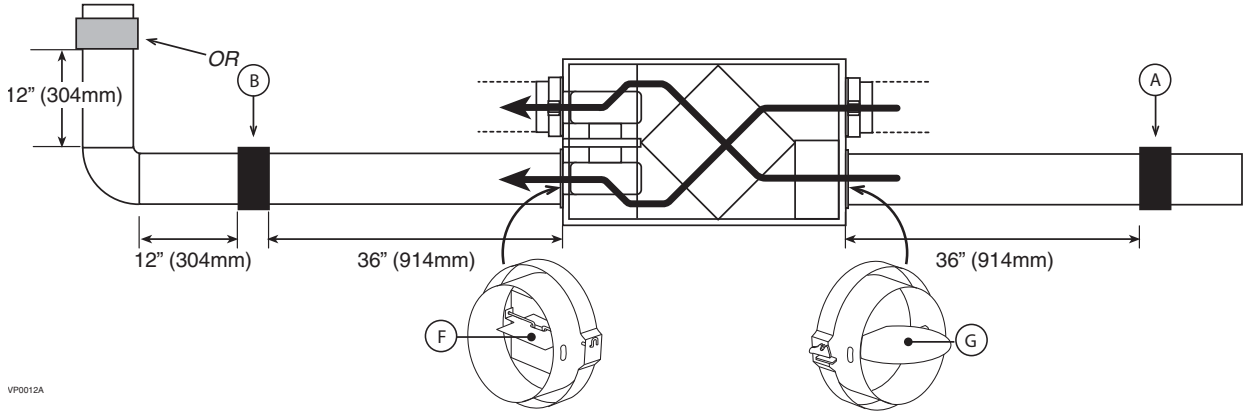
Flow measuring station

Preliminary Stages to Balance the Unit

- Seal all the unit ductwork with tape. Close all windows and doors.
- Turn off all exhaust devices such as range hood, dryer and bathroom fans.
- Make sure all filters are clean (if it is not the first time you balance the unit).
- Make sure the balancing dampers are fully open (F and G in figure below).

Choose appropriate locations for the 2 flow collars (or flow measuring stations), according to figure below:

- On the exhaust air duct (first measuring location, A)
- On the fresh air distribution duct (second measuring location, B
- At least 36” away from the unit; at least 12” before or after a 90° elbow; at least 12” away from a register.



Installation of Flow Collars or “Flow Measuring Stations”

- **If you are using Flow Collars:**

  Insert the flow collars in the duct at each location. Make sure their arrows are pointing in the direction of the airflow. Tape collars in place temporarily.

- **If you are using “Flow Measuring Stations”:**

  Cut a 1” (25.4 mm) diameter hole in the duct at each location. Insert the “Flow Measuring Stations”. Make sure their arrows are pointing in the direction of the airflow. Tape the “Flow Measuring Stations” in place temporarily.

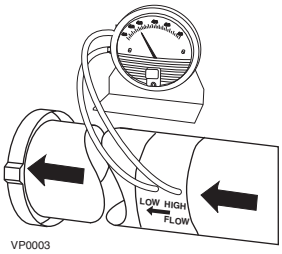
9. Air Flow Balancing (cont'd)

BALANCING PROCEDURE

1. Set the unit to high speed.
   Make sure that the furnace blower is ON if the installation is in any way connected to the ductwork of the cold air return. If not, leave furnace blower OFF. If the outside temperature is below 0°C / 32°F, make sure the unit is not running in defrost while balancing. (By waiting 10 minutes after plugging the unit in, you are assured that the unit is not in a defrost cycle.)

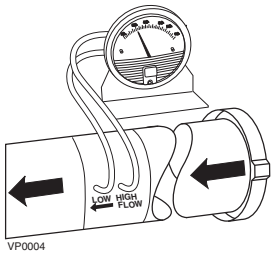
2. Place the magnehelic gauge on a level surface and adjust it to zero.

3. Connect tubing from gauge to flow collar (or "Flow Measuring Station") in exhaust air stream at location A. Be sure to connect the tubes to their appropriate *high/low* fittings. If the gauge drops below zero, reverse the tubing connections.
   NOTE: It is suggested to start with the exhaust air flow reading because the exhaust has typically more restriction than the fresh air, especially in cases of fully ducted installations and exhaust ducted installation.
   Place the magnehelic gauge upright and level. Record the readings.



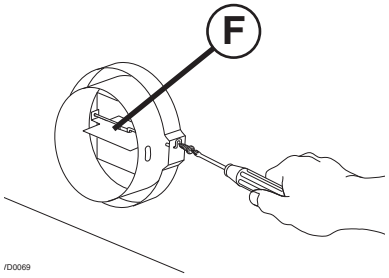
VP0003

4. Move tubing to FRESH air flow on the other side of the unit (location B) and note readings.
   Adjust the fresh air balancing damper F until the reading at B is approximately the same as the reading at A. If the reading at B is less than the reading at A, then go back and adjust the exhaust balancing damper G to equal the fresh air flow.

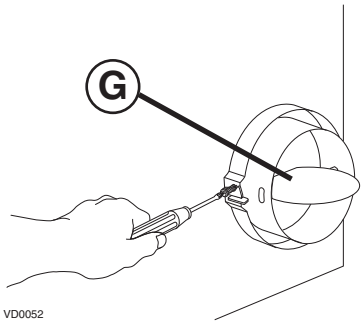


VP0004

5. Secure both dampers in place with tape or with a fastening screw.



/D0069



VD0052

6. If you are using flow collars, remove them, reconnect the duct and seal with duct tape. If you are using "Flow Measuring Stations", remove them and seal the holes with duct tape. Write the required air flow information on a label and stick it near the unit for future reference (date, maximum speed air flows, your name, phone number and business address).

NOTES: Most flow collar kits provide a conversion chart located on the collar which enables you to convert magnehelic gauge readings to equivalent cfm values.

The unit is considered balanced even if there is a difference of ±10 cfm (± 0.015 inch w.g.) between the two air flow readings.

If you are only using one flow collar or one "Flow Measuring Station", then, after completing the first reading, transfer this measuring device to the other side of the unit and take the second reading.

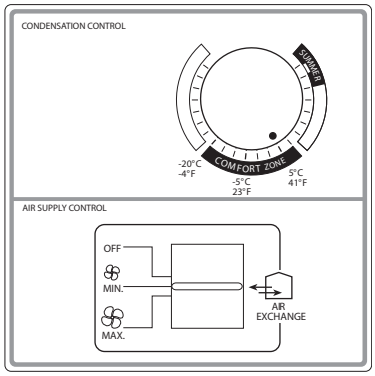
10. Overall Verification

10.1 Main Controls

This procedure allows the installer to verify that all modes of operation are fully functional.
During the verification of a main control, make sure that all optional remote controls are inactive.

Basic (Canada) / VT1W (U.S.A.) (6 different control scenarios to be tested)

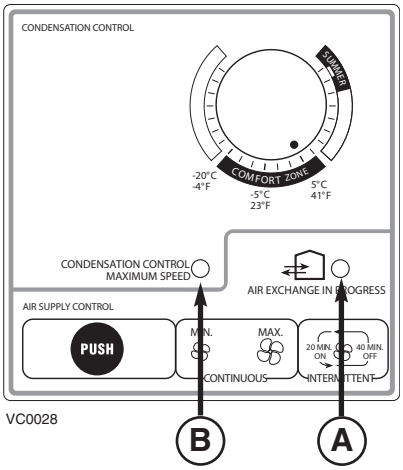
	Set the slider switch	Set the condensation control dial to	**Results expected** fan speed
1	Off	maximum counterclockwise	Motor off
2	Off	maximum clockwise	Motor off
3	Min.	maximum counterclockwise	Low speed
4	Min.	maximum clockwise	High speed
5	Max.	maximum counterclockwise	High speed
6	Max.	maximum clockwise	High speed



VC0027

VT2W (U.S.A.) (8 different control scenarios to be tested)

	Set air supply control to	Set the condensation control dial to	**Results expected**		
			fan speed	Exchange indicator **A**	max. speed indicator **B**
1	Off	maximum counterclockwise	On	Off	Off
2	Off	maximum clockwise	On	Off	Off
3	Min.	maximum counterclockwise	Low	On	Off
4	Min.	maximum clockwise	High	On	On
5	Max.	maximum counterclockwise	High	On	Off
6	Max.	maximum clockwise	High	On	On
7	Intermittent	maximum counterclockwise	Off 40 min. Low 20 min.	On 40 min. On 20 min.	Off Off
8	Intermittent	maximum clockwise	High	On	On

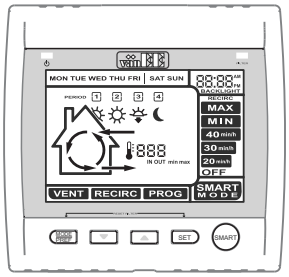


VC0028

Platinum (Canada)

At its very start-up, the Platinum control will perform a booting sequence before being ready to operate. The booting sequence is done when the hour display is flashing.

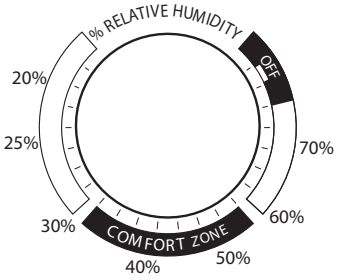
Refer to the installation sheet included with the Platinum control for more details in programming and setting preferences.



VC0104

Humidity Main Control

Turn dial to maximum clockwise position.
Results expected: Motor speed changes to high.
NOTE: Appearance may vary.



HUMIDITY CONTROL
VC0031

10. Overall Verification (cont'd)

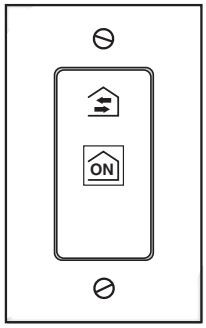
10.2 Optional Controls

First, turn OFF the main control device Basic,VT1W, VT2W, Platinum or 3-Position Switch before checking the remote optional control(s).

20-minute push-button:
(Available only for HRV100H and HRV200H models.)

Activate the push-button.

Results expected:
1. Motor speed: High for 20 minutes.
2. Indicator light goes "ON".
3. Air exchange indicator light goes "ON" (VT2W control only).



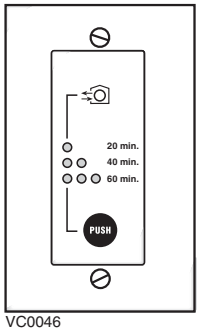
VC0030

20/40/60-minute push-button timer:
(Not available for HRV100H and HRV200H models.)

Activate the push-button. Within 2 seconds, push one time for 20 minutes, two times for 40 minutes or three times for a 60-minute activation.

Results expected:
1. Motor speed: High for 20, 40 or 60 minutes.
2. Indicator light goes "ON" and flashes every 5 seconds (one time to indicate a 20-minute operation, two times for a 40-minute, and three times for a 60-minute operation).
3. Air exchange indicator light goes "ON" (VT2W control only).

NOTE: To stop activation, push one more time.



VC0046

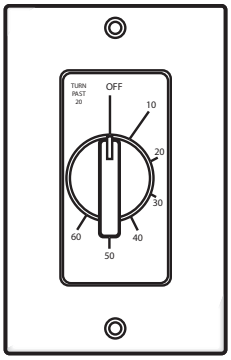
60-minute crank timer:

Activate the timer.

Results expected:

1. Motor speed: High for either 20, 40 or 60 minutes.
2. Air exchange indicator light goes "ON" (VT2W control only).

High speed activation time	Position of dial
20 minutes	1 to 19
40 minutes	20 to 39
60 minutes	40 to 60



VC0017

11. Maintenance / Instructions for User

⚠ WARNING

Risk of electrical shocks. Before performing any maintenance or servicing, always disconnect the unit from its power source.

- Review with the user the steps required for the regular maintenance of her/his ventilation system. These steps are described in details in the user manual:

FOUR TIMES A YEAR:
- Inspect the intake hood, and clean if needed.
- Clean the filters.
- Clean the interior of the cabinet and clean the door.
- Clean the condensation tray and inspect the drain tubing (if need be).

ONCE A YEAR:
- Clean the recovery core.
- Clean the blades of the blower wheels if needed.

- Warn the user of the necessity to rebalance the system following a major house renovation or following the installation of any extra registers.
- Make sure the user understands how to use the main control as described in the user manual.

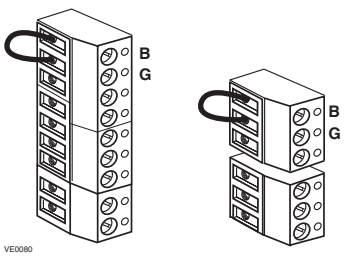
CAUTION

Do not oil the motor. It is already permanently lubricated.

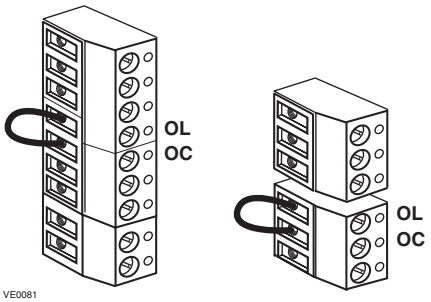
12. Troubleshooting

NOTE: Inspect the unit before proceeding with these steps.

Start-up troubleshooting:

PROBLEMS	POSSIBLES CAUSES	YOU SHOULD TRY THIS
1. The error code E1 is displayed on Platinum control screen.	• The wires may be in reverse position. • The wires may be broken. • The wires may have a bad connection.	• Ensure that the color coded wires have been connected to their appropriate places. • Inspect every wire and replace any that are damaged. • Ensure the wires are correctly connected.
2. There is no outside temperature displayed on Platinum control screen ▬ ▬.	• The unit thermistor is defective.	• Replace the thermistor. NOTE: At its very start-up or after a power failure, it takes some minutes before the outside temperature appears on screen. The delay duration depends on which operation mode the control is set. The shortest delay is obtained when the control is set on MIN or MAX in VENT Mode.
3. Platinum control screen alternates between normal display and E3.	• The Platinum control is defective.	• Replace the Platinum control.
4. Platinum control screen alternates between normal display and E4.	• The Platinum control is defective.	• Replace the Platinum control.
5. Unit does not work.	• The circuit board may be defective.	• Unplug the unit. Disconnect the main control and the optional(s) control(s) (if need be). Jump **B** and **G** terminals. Plug the unit. If the motor runs on high speed and the damper opens, the circuit board is not defective. 
	• The power cord fuse may be blown.	• Unplug the unit. Unscrew the fuse holder (grey circle on illustration beside). Check if the fuse is blown (the strand is broken). If it is blown, replace the fuse according to the specifications on the unit power cord tag.
6. The damper actuator does not work.	• The 9-pin connector may have a loose connection. • The damper actuator may be defective. • The circuit board may be defective.	• Unplug the unit and check to make sure all the crimp connections are secured. Check the damper actuator connections as well. • Feed 120 V directly to the damper actuator. If the problem persists, replace the damper actuator. • Replace the circuit board if the problem is not solved by the above.
7. The control does not work OR the indicators flashes every 8 seconds.	• The wires may be in reverse position. • The wires may be broken. • There may be a short-circuit. • The wire in the wall OR the control may. • The circuit board may be defective.	• Ensure that the color coded wires have been connected to their appropriate places. • Inspect every wire and replace any that are damaged. • With the help of a multimeter, check for continuity. • Remove the control and test it right beside the unit using another shorter wirer. If the control works there, change the wire. If it does not, change the control. • If the second control does not solve the problem, then replace the circuit board.

12. Troubleshooting (cont'd)

PROBLEMS	POSSIBLES CAUSES	YOU SHOULD TRY THIS
8. The 20-minute push-button or the 20/40/60-minute push-button timer does not work OR its indicator light does not stay on.	• The switch may be defective.	• Unplug the unit. Disconnect the main control and the optional(s) control(s) (if need be). Jump the **OL** and **OC** terminals. Plug the unit. If the unit switches to high speed, replace the switch. 
9. The defrost cycle does not work (the fresh air duct is frozen OR the fresh air distributed is very cold.	• Ice deposits may be hindering the damper operation.	• Remove the ice.
	• The damper rod or the port damper itself may be broken.	• Inspect these parts and replace if necessary.
	• The damper actuator may be defective.	• Plug in the unit and select "MIN" or "MAX". Press the door switch and see if the port damper opens. If it doesn't open, feed 120V directly to the damper actuator. If the port damper still does not open, replace the damper actuator.
	• The circuit board may be defective.	• Unplug the unit. Unplug the defrost sensor wire (see J4 on electrical diagrams, Section 8). Plug the unit back in. Select "MIN" and make sure the unit is adjusted for low speed operation (turn all dehumidistats high speed and the damper at the fresh air intake port should close (defrost mode). If this does not happen, then replace the circuit board.
	• The thermistor may be defective.	• If the defrost mode works well after having disconnecting the thermistor disconnecting the thermistor wire (above test), this means the thermistor is probably defective. You should replace it.

13. References

- HVI, "Installation Manual for Heat Recovery Ventilators", 1987 edition.
- ASHRAE 1984 Systems Handbook, chapter 11, "Air Distribution Design for Small Heating and Cooling Systems".